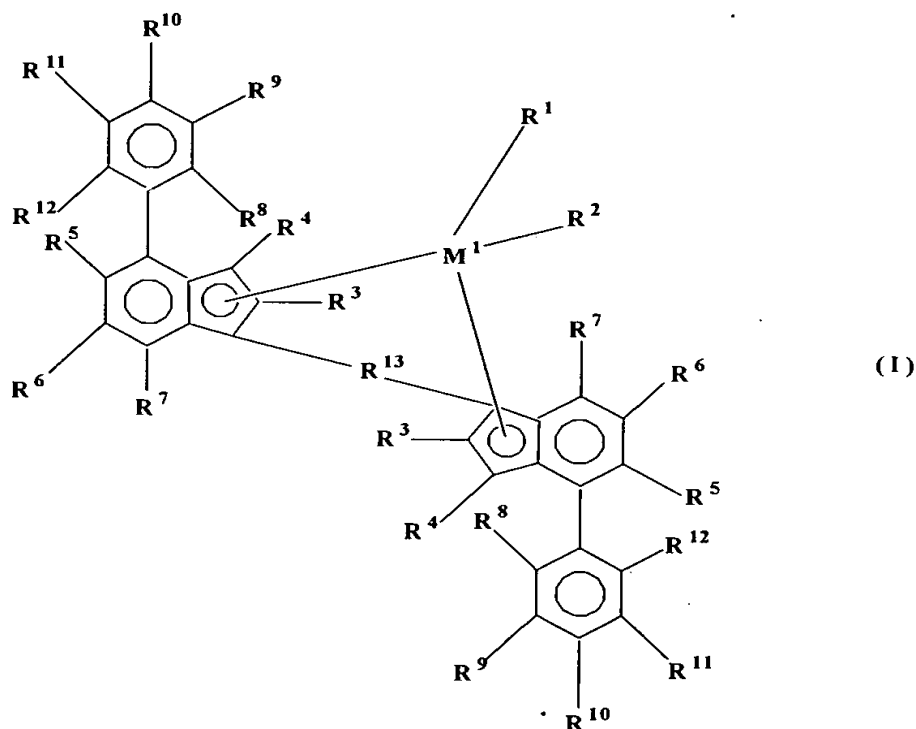


We claim:

Claim 1. A compound represented by the formula:



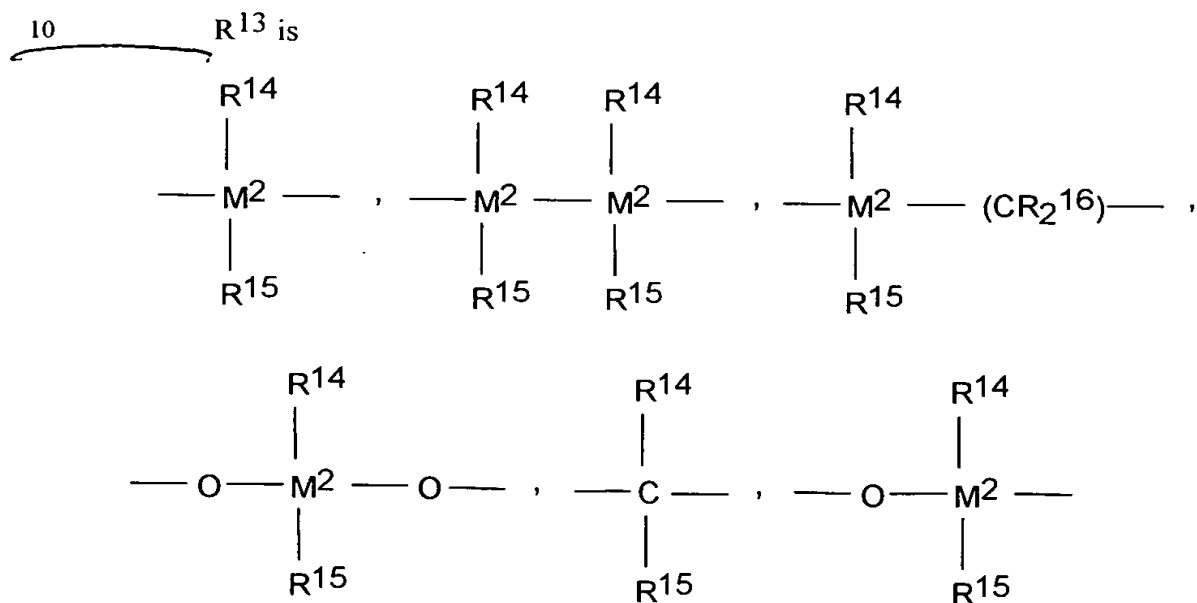
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wherein: M^1 is selected from the group consisting of titanium, zirconium, hafnium, vanadium, niobium, tantalum, chromium, molybdenum and tungsten;

R^1 and R^2 are identical or different, and are one of a hydrogen atom, a C_1 - C_{10} alkyl group, a C_1 - C_{10} alkoxy group, a C_6 - C_{10} aryl group, a C_6 - C_{10} aryloxy group, ~~a C_2 - C_{10} alkenyl group~~, a C_2 - C_{40} alkenyl group, a C_7 - C_{40} arylalkyl group, a C_7 - C_{40} alkylaryl group, a C_8 - C_{40} arylalkenyl group, an OH group or a halogen atom, or a conjugated diene which is optionally substituted with one or more hydrocarbyl, tri(hydrocarbyl)silyl groups or ~~hydrocarbyl~~, tri(hydrocarbyl)silylhydrocarbyl groups, said diene having up to 30 atoms not counting hydrogen;

R^3 are identical or different and are each a hydrogen atom, a halogen atom, a C_1 - C_{10} alkyl group which may be halogenated, a C_6 - C_{10} aryl group which may be halogenated, a C_2 - C_{10} alkenyl group, a C_7 - C_{40} arylalkyl group, a C_7 - C_{40} alkylaryl group, a C_8 - C_{40} arylalkenyl group, a $-NR'^2$, $-SR'$, $-OR'$, $-OSiR'^3$ or $-PR'^2$ radical, wherein R' is one of a halogen atom, a C_1 - C_{10} alkyl group, or a C_6 - C_{10} aryl group;

R^4 to R^7 are identical or different and are hydrogen, as defined for R^3 or two or more adjacent radicals R^5 to R^7 together with the atoms connecting them form one or more rings;

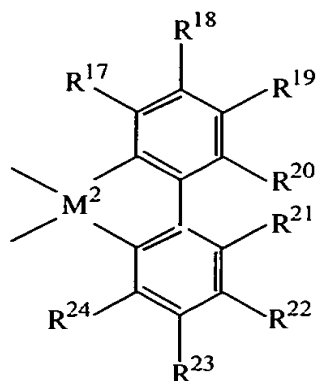


$-B(R^{14})-$, $-Al(R^{14})-$, $-Ge-$, $-Sn-$, $-O-$, $-S-$, $-SO-$, $-SO_2-$, $-N(R^{14})-$, $-CO-$, $-P(R^{14})-$, or $-P(O)(R^{14})-$, or an amidoborane radical;

wherein: R^{14} , R^{15} and R^{16} are identical or different and are a hydrogen atom, a halogen atom, a C_1 - C_{20} alkyl group, a C_1 - C_{20} fluoroalkyl or silaalkyl group, a C_6 - C_{30} aryl group, a C_6 - C_{30} fluoroaryl group, a C_1 - C_{20} alkoxy group, a C_2 - C_{20} alkenyl group, a C_7 - C_{40} arylalkyl group, a C_8 - C_{40} arylalkenyl group,

a C₇-C₄₀ alkylaryl group, or R¹⁴ and R¹⁵, together with the atoms binding them, form a cyclic ring;

or ^AR¹³ is represented by the formula:



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wherein: R¹⁷ to R²⁴ are ~~as defined for R¹ and R²~~ or two or more adjacent radicals R¹⁷ to R²⁴, including R²⁰ and R²¹, together with the atoms connecting them form one or more rings;

10 M² is one or more carbons, silicon, germanium or tin;

R⁸, R¹⁰ and R¹² are identical or different and have the meanings stated for R⁴ to R⁷; and

R⁹ and R¹¹ are identical or different and are each primary, secondary or tertiary butyl groups.

15

Claim 2. The compound of claim 1 wherein R³ are identical C₁-C₄ alkyl groups.

Claim 3. The compound of claim 1 wherein R³ are identical C₃ alkyl groups.

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Claim 4. The compound of claim 1 wherein R^4 to R^7 are hydrogen atoms.

Claim 5. The compound of claim 1 wherein R^4 to R^7 and R^{14} to R^{16} are hydrogen atoms.

5

Claim 6. The compound of claim 1 wherein R^9 and R^{11} are both tertiary butyl groups.

Claim 7. The compound of claim 1 wherein R^4 to R^7 and R^{14} to R^{16} are
10 hydrogen atoms and R^9 and R^{11} are both tertiary butyl groups.

Claim 8. A catalyst composition comprising the reaction product of the compound of claim 1 and a cocatalyst.

15 Claim 9. The catalyst composition of claim 8 wherein the cocatalyst comprises one or more non-coordinating anion activators.

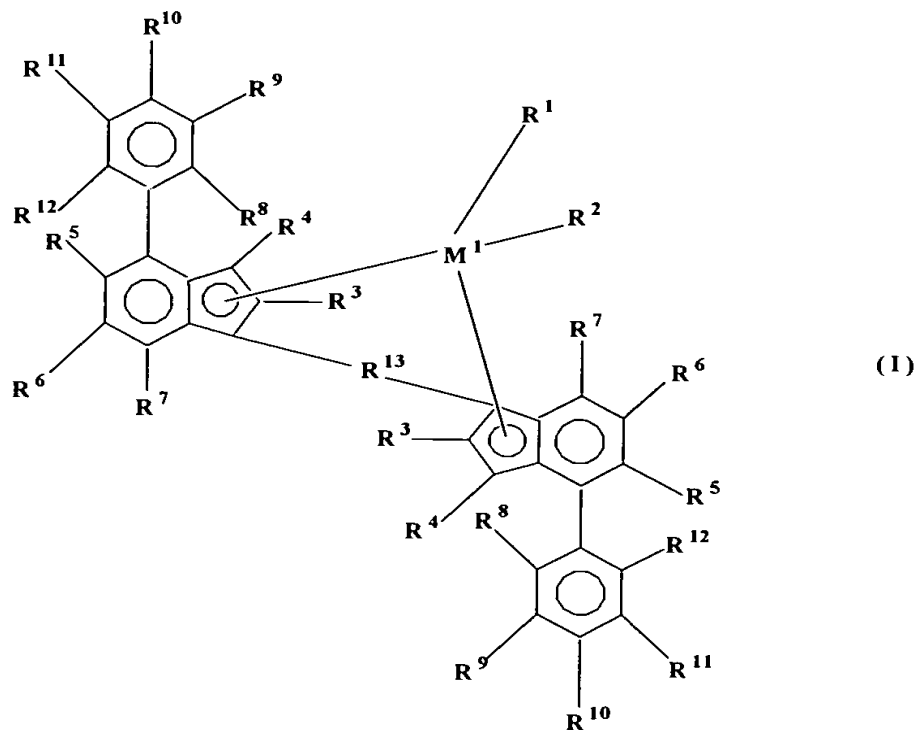
Claim 10. The catalyst composition of claim 8 wherein the cocatalyst comprises one or more alkylalumoxane activators.

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Claim 11. The catalyst composition of claim 8 wherein the cocatalyst comprises a non-coordinating anion activator and an alkylalumoxane activator.

Claim 12. A compound represented by the formula:

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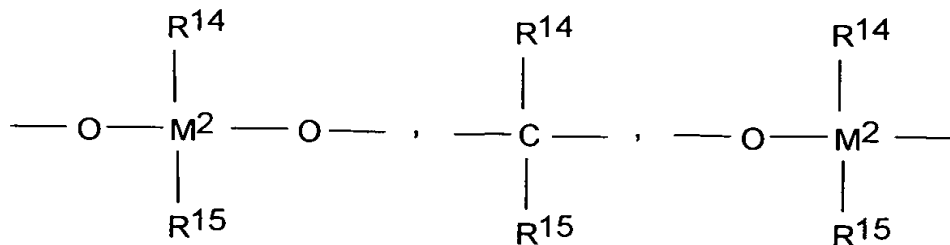
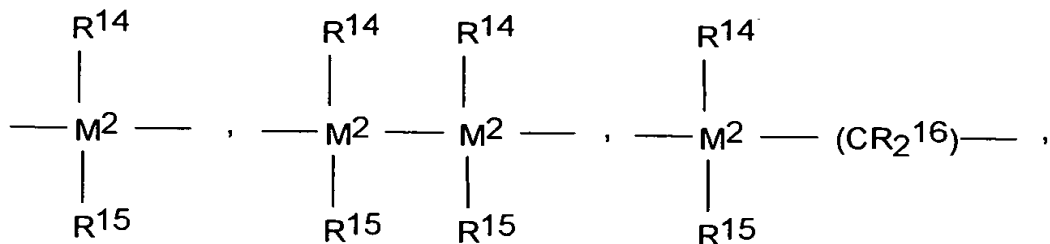
5 wherein: M^1 is selected from the group consisting of titanium, zirconium, hafnium, vanadium, niobium, tantalum, chromium, molybdenum and tungsten;

R^1 and R^2 are identical or different, and are one of a hydrogen atom, a C_1 - C_{10} alkyl group, a C_1 - C_{10} alkoxy group, a C_6 - C_{10} aryl group, a C_6 - C_{10} aryloxy group, ~~a C_2 - C_{10} alkenyl group~~ a C_2 - C_{40} alkenyl group, a C_7 - C_{40} arylalkyl group, a C_7 - C_{40} alkylaryl group, a C_8 - C_{40} arylalkenyl group, an OH group or a halogen atom, or a conjugated diene which is optionally substituted with one or more hydrocarbyl, tri(hydrocarbyl)silyl groups or ~~hydrocarbyl~~ tri(hydrocarbyl)silylhydrocarbyl groups, said diene having up to 30 atoms not counting hydrogen;

15 R^3 are identical and are each a ~~C_1 or C_2 alkyl group, a C_3 alkyl group or a C_4 - C_{10} alkyl group~~ C_1 - C_{10} alkyl group

R^4 to R^7 are identical or different and are hydrogen, as defined for R^3 or two or more adjacent radicals R^5 to R^7 together with the atoms connecting them form one or more rings;

R^{13} is



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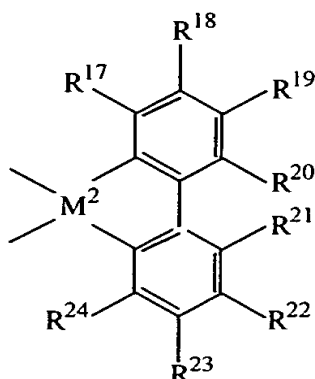
$-B(R^{14})-$, $-Al(R^{14})-$, $-Ge-$, $-Sn-$, $-O-$, $-S-$, $-SO-$, $-SO_2-$, $-N(R^{14})-$, $-CO-$, $-P(R^{14})-$, or $-P(O)(R^{14})-$, or an amidoborane radical;

wherein: R^{14} , R^{15} and R^{16} are identical or different and are a hydrogen atom, a halogen atom, a C_1 - C_{20} alkyl group, a C_1 - C_{20} fluoroalkyl or silaalkyl group, a C_6 - C_{30} aryl group, a C_6 - C_{30} fluoroaryl group, a C_1 - C_{20} alkoxy group, a C_2 - C_{20} alkenyl group, a C_7 - C_{40} arylalkyl group, a C_8 - C_{40} arylalkenyl group, a C_7 - C_{40} alkylaryl group, or R^{14} and R^{15} , together with the atoms binding them, form a cyclic ring;

or R^{13} is represented by the formula:

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wherein: R¹⁷ to R²⁴ are ~~as defined for R¹ and R²~~ or two or more adjacent radicals R¹⁷ to R²⁴, including R²⁰ and R²¹, together with the atoms connecting them form one or more rings;

M² is one or more carbons, silicon, germanium or tin;

R⁸, R¹⁰ and R¹² are identical or different and have the meanings stated for R⁴ to R⁷; and

R⁹ and R¹¹ are identical or different and are each primary, secondary or tertiary butyl groups.

Claim ~~13~~⁹. The compound of claim ~~12~~⁹ wherein R⁴ to R⁷ are hydrogen atoms.

Claim ~~14~~¹⁰. The compound of claim ~~12~~⁸ wherein R⁴ to R⁷ and R¹⁴ to R¹⁶ are hydrogen atoms.

Claim ~~15~~¹¹. The compound of claim ~~12~~⁸ wherein R³ are both C₃ alkyl groups and R⁹ and R¹¹ are both tertiary butyl groups.

Claim ~~16~~¹². The compound of claim ~~12~~⁸ wherein R⁴ to R⁷ and R¹⁴ to R¹⁶ are hydrogen atoms and R⁹ and R¹¹ are both tertiary butyl groups.

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Claim 17. A catalyst composition comprising the reaction product of the compound of claim 1 and a cocatalyst.

Claim 18. The catalyst composition of claim 17 wherein the cocatalyst
5 comprises one or more non-coordinating anion activators.

Claim 19. The catalyst composition of claim 17 wherein the cocatalyst comprises one or more alkylaluminumoxane activators.

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